SHORT REPORTS

Early prenatal diagnosis of diastrophic dwarfism by ultrasound

Several forms of dwarfism are hereditary. One such is diastrophic dwarfism, which is inherited as an autosomal recessive. There is a need for early prenatal diagnosis of these conditions, but no satisfactory method has been available until now. We describe a patient in whom ultrasonic measurements of fetal limb length were compared with normal values.[1] Occasionally, as in this case, fetoscopy may be used to confirm the diagnosis.

Case report

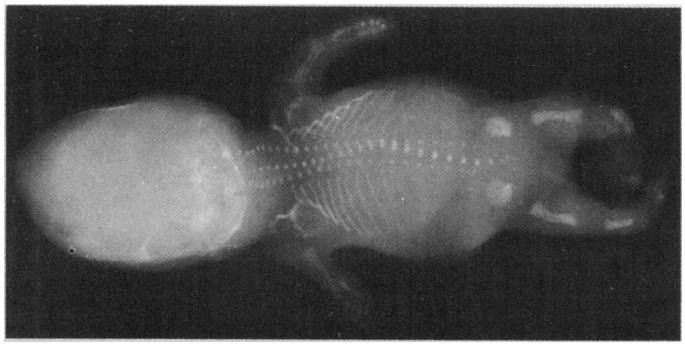
A 28-year-old Caucasian gravida 2, para 1, was referred for ultrasound examination to rule out possible diastrophic dwarfism syndrome in her present pregnancy. She had delivered an affected baby two years previously.

The first ultrasound examination, performed at a menstrual age of 13 weeks and 5 days, showed a crown-rump length of 43 mm corresponding to a gestational age of 11 weeks. Three weeks later a repeat ultrasound examination using the Kretz Combison 100 real-time scanner confirmed the gestational age determined by ultrasound. The limbs were examined but our difficulty in defining their outline at this gestation suggested that there was an abnormality. A femur length of 9 mm was recorded (normal range 13-20 mm[1]).

Two weeks later, at 16 weeks' gestation, a further scan was performed to confirm this suspicion. Again, there was some difficulty in defining the limbs but we obtained a reproducible femur length measurement of 13 mm (normal range 19-26 mm[1]). This was well below the expected range for the period of gestation and dwarfism was diagnosed on the basis of considerably shortened femur measurements. We decided to verify this and to assess the severity of the condition by fetoscopy.

At fetoscopy we obtained good visualisation of the fetus. The limbs were extremely short and curved and examination of the face and oral cavity showed micrognathia and cleft palate. These features were consistent with diastrophic dwarfism.

The patient elected to terminate the pregnancy and postmortem examination of the fetus confirmed the diagnosis. The limb deformities are illustrated in the radiograph (figure): there is gross shortening of the long bones and the varus deformities are evident.



Radiograph showing limb deformities of diastrophic dwarfism.

Comment

Definitive prenatal detection of congenital limb deformities has until now been confined mainly to radiology and fetoscopy. Radiology is reliable only later in pregnancy and carries a small risk of irradiation to the fetus. Omenn *et al*[2] reported using *x* rays between 16 and 18 weeks' gestation to rule out hereditary skeletal dysplasia in seven cases, but no positive diagnosis was made.

Fetoscopy permits direct examination of the fetus but is invasive and has a 3-5% fetal mortality.[3] The assessment of proportion—for example, abnormal facies or minor limb reduction—is difficult, but discrete limb abnormalities or cleft palate can be identified with confidence. Fetoscopy has also been used to establish the presence of spina bifida[4] and of an extra digit in Ellis-van Creveld syndrome.[5]

Ultrasound is non-invasive and can be repeated with safety. The newer, high-resolution real-time scanners have made it possible to establish a normal range for limb length early in gestation.[1] Thus gross deformities can be diagnosed, as illustrated in this case. They can also be excluded in patients at risk of carrying a fetus with these deformities. As confidence with this technique increases, the need for fetoscopy will diminish.

Real-time scanning is fast and can be performed with relative ease. Although the incidence of congenital limb deformities in the general population is low, screening for these disorders is feasible: measurement of limb length will probably become part of every fetus's physical examination during the second trimester.

We thank Dr Hughes-Nurse and Dr D M Johnston of Peterborough for permission to report this case, Dr M Driver for performing the necropsy, and the radiography department for taking the radiograph.

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[4] Rodeck CH, and Campbell S. Early prenatal diagnosis of neural tube defects by ultrasound-guided fetoscopy. *Lancet* 1978;i:1128-9.
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Effect of labetalol on blood pressure and plasma catecholamine concentrations in patients with phaeochromocytoma

The safety of labetalol, which has both alpha- and beta-adrenoreceptor blocking actions, in treating phaeochromocytoma[1] remains controversial since severe sustained hypertension was reported in one patient.[2] We investigated the effects of labetalol in three patients with phaeochromocytoma. In each case the tumour was localised by computerised axial tomography before starting treatment.

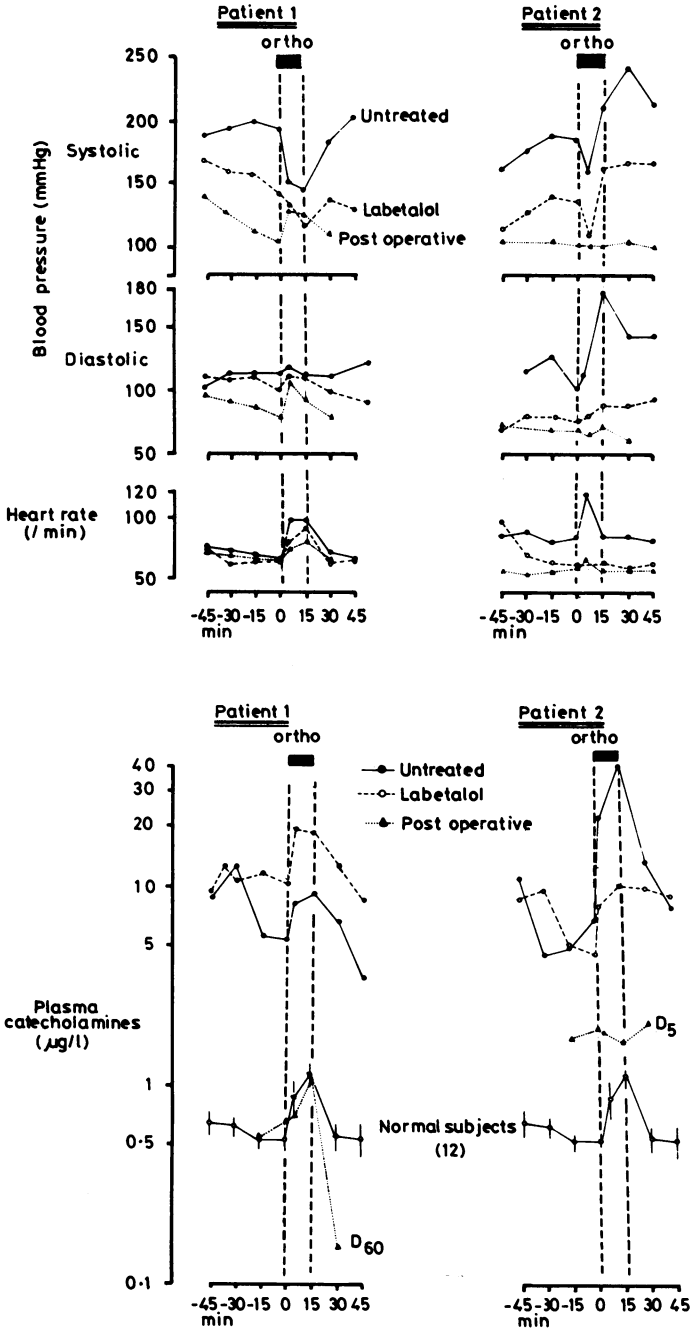
Patients, methods, and results

The patients gave informed consent for investigation and treatment. Labetalol was given either by mouth (patients 1 and 2) or intravenously (patient 3). Blood pressures were monitored carefully throughout the trial. Orthostatic tests (15 minutes in immobile orthostasis) were made in patients 1 and 2 before and during labetalol treatment and 60 days (patient 1) or five days (patient 2) after surgery. Their blood pressure and heart rate were monitored and blood sampled simultaneously for measuring catecholamine concentrations. The samples were taken one hour after labetalol 100 mg had been given. Similar measurements were made in 12 healthy controls. Catecholamines (adrenaline+noradrenaline) were assayed by a radioenzymatic method.[3]

Before treatment the blood pressures of patients 1, 2, and 3 averaged 184/110, 184/125, and 162/96 mm Hg respectively, with very wide variations. In patient 1 giving labetalol 200 mg was followed by a rapid fall of blood pressure to normal. It returned to the initial level after six hours, but was kept normal during the next 10 days by labetalol 100 mg four times a day. The blood pressure in this period averaged 144/92 mm Hg. In

patient 2 labetalol 50 mg did not improve hypertension: on the contrary, the blood pressure rose transiently. The next day it fell to normal and remained there for four hours after labetalol 100 mg. During the next eight days the blood pressure was kept at normal with labetalol 100 mg six times a day. The average blood pressure was 144/98 mm Hg. In patient 3 intravenous infusion of labetalol 50 mg over three hours rapidly brought the blood pressure to normal. Labetalol 100 mg by mouth was given one hour before stopping the infusion. The blood pressure was then restored to normal for six days with only 100 mg labetalol twice a day, the average blood pressure during that time was 134/82 mm Hg.

Orthostatic systolic hypotension was of a similar magnitude in patients 1 and 2 before and during treatment (figure). Labetalol also lowered the acceleration of heart rate during orthostasis. It had no effect on plasma catecholamine concentrations, which remained about 10 times higher than in the controls. This shows that the effect of labetalol on blood pressure was not a chance one.



Blood pressure, heart rate, and plasma catecholamine concentrations in two patients (1 and 2) in recumbency and during orthostatic tests (ortho) when untreated (o ——— o), when taking labetalol (o ——— o), and postoperatively (△ ——— △). Plasma catecholamine concentrations (mean ± SEM) in 12 healthy controls also shown.

Conversion: Traditional to SI units—
Catecholamines (as adrenaline): 1 µg/l ≈ 5·0 µmol/l.

Comment

None of our patients had a sustained hypertensive response to labetalol, as has been reported in one case.[2] Only in patient 2 was a 50-mg dose followed by transient hypertension. A subsequent 100-mg dose lowered the blood pressure. This sequence would be consistent with the hypothesis that an inadequate alpha-adrenergic blockade by too low a dose of the drug aggravates hypertension. Labetalol is indeed much more potent as a beta- than an alpha-adrenoreceptor blocking agent.[4] Finally, the blood pressure was restored to normal with small doses of the drug. In all the patients headaches and sweating disappeared, there were no side effects, and orthostatic hypotension was not aggravated. We therefore think that labetalol could be useful in the preoperative management of patients with phaeochromocytoma provided the blood pressure was carefully monitored, especially when starting treatment.

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Campylobacter jejuni/coli meningitis in a neonate

Campylobacter fetus is a rare cause of various human infections, including, occasionally, meningitis.[1] Campylobacters of the *jejuni/coli* group have been recognised recently as an important cause of gastroenteritis.[2] There have been no reports so far, however, of meningitis caused by these organisms, although earlier confusion about the taxonomy of the genus may mean that a few of the cases attributed to *C fetus* were in fact *C jejuni/coli* infections. We describe the first clearly defined case.

Case report

A 12-day-old boy presented with a 20-hour history of lethargy and refusing feeds. Gestation had been uncomplicated, vaginal delivery at term was normal, and birth weight was 3·3 kg. The baby had been discharged home, breast-feeding well, after 48 hours. On readmission he was drowsy, hypotonic, mildly dehydrated, jaundiced (serum bilirubin 200 µmol/l (12 mg/100 ml)), and febrile (37·8°C). His anterior fontanelle was normal. The peripheral blood showed a leucocytosis of $41{\cdot}6 \times 10^9$/l (41 600/mm³) with 95% neutrophils. Lumbar puncture yielded turbid cerebrospinal fluid (CSF) containing leucocytes $1{\cdot}092 \times 10^9$/l (1092/mm³) with 64% lymphocytes and 36% neutrophils, and raised protein (>2 g/l) and low glucose concentrations (0·1 mmol/l (1·8 mg/100 ml)). Blood glucose was 5·3 mmol/l (95·4 mg/100 ml). No organisms were seen in the Gram-stained deposit. Penicillin G (200 mg/kg/day), chloramphenicol (50 mg/kg/day), and cloxacillin (100 mg/kg/day) were given intravenously with clinical response. Culture of the CSF yielded a scanty growth of spiral and S-shaped Gram-negative bacilli resembling campylobacters 24 hours later. Treatment was then modified to chloramphenicol (50 mg/kg/day for 13 days) and gentamicin (6 mg/kg/day for seven days) intravenously. A blood culture taken on admission subsequently proved to be sterile. The baby remained well and was discharged seven days after all antibiotic treatment had been discontinued.

The organism was microaerophilic and grew well on campylobacter medium at 43°C and 37°C but not at 25°C. It was oxidase positive and catalase positive, reduced nitrate to nitrite, did not ferment sugars or produce